AUTHORS' INDEX

ACKERLIND, C. G.; PELLINI, W. S.; BISHOP, H. F. — Investigation of Metallurgical and Mechanical Effects in the Development of Hot Tearing 247

ADAMS, C. M., JR.; TAYLOR, H. F. — Flow of Heat from Sand Castings by Conduction, Radiation, and Convection... 170

ADAMS, C. M.; TAYLOR, H. F.; SULLIVAN, E. J., JR. — Transport of Feed Metal During Solidification of Tapered Steel Bars 394

AHEARN, P. J.; WALLACE, J. F.; QUIGLEY, F. — Influence of Various Bonding Materials on Stress-Strain Characteristics of Bonded Sands 319

AFS PEARLITIC MALLEABLE COMMITTEE (6-E) — Comparison of Properties of Liquid- and Air-Quenched Pearlitic Malleable Irons — Part II — Duplex, Cold-Melt Process and Alloyed Pearlitic Malleable Irons 304

AFS SAND DIVISION COMMITTEE (8-J) — Correlation Between Casting Surface and Hot Properties of Molding Sands.. 128

AFS SAND DIVISION COMMITTEE (8-L) — Scabbing of Steel Molding Sands 235

ANTES, H. W.; EDELMAN, R. E.; HEHNER, N. — Mechanical Properties of Cast Titanium-Iron and Titanium-Aluminum-Iron Alloys 374

ANTES, H. W.; EDELMAN, R. E.; OWENS, R. K. — Effect of Nitrogen and Vacuum Degassing on Properties of a Cast Aluminum-Silicon-Magnesium Alloy (Type 356) 424

BARNETT, G., SIR — Health and Safety in Foundries..... 17

BARR, H. F. — An Automotive Engineer Views the Foundry 161

BELTER, E. H.; HEINE, R. W. — Effects of Charge Materials and Melting Conditions on Properties of Malleable Iron 134

BENNETT, F. C.; BURKETT, F. L. — Automatic Metering of Magnesium for Cold Chamber Die Casting 166

BISHOP, H. F.; ACKERLIND, C. G.; PELLINI, W. S. — Investigation of Metallurgical and Mechanical Effects in the Development of Hot Tearing 247

BISHOP, H. F.; HOWELLS, N. C.; MOREY, R. E. — Properties of Molding Sands Under Conditions of Gradient Heating 402

BOCK, W. K.; JOHNSON, H. H. — Investigation of the Effect of Processing Variables on Mechanical Properties of Pearlitic Malleable Iron 450

BORNSTEIN, H. — Progress in Iron Castings 1

BRINKMANN, N. D.; GOTTSCHALK, G. — Effect of Temperature on the pH of Foundry Sands 84

BURKETT, F. L.; BENNETT, F. C. — Automatic Metering of Magnesium for Cold Chamber Die Casting 166

BURTON, H. A. — Plastics in Patternmaking 432

COLWELL, D. L.; KISSLING, R. J. — Corrosion of Aluminum Die Castings 140

DALTON, R. F. — Intricate Small Diameter Coring of Aluminum and Magnesium Alloy Sand Castings 483

DAVIS, C. J.; HROMI, J. D. — Use of Fractional Factorial Designs in Sintering Experiments 352

DAVIS, J. A.; KRAUSE, D. E.; LOWNIE, H. W., JR. — Tin as an Alloy in Gray Cast Iron 590

DEMOSS, N. P. — A Foundry Application of the Master Control System 157

DEROSS, A. B. — Aging Practices for High Strength Ductile Aluminum Alloy HP356 565

DISYLVESTRO, G. — Practical Studies in Veining Tendencies.. 323

DODD, R. A.; POLLARD, W. A.; MEIER, J. W. — Hot Tearing of Magnesium Casting Alloys 100

DOLBY, J. L. — Administrative Engineering Applications of Statistical Methods 155

EDELMAN, R. E.; HEHNER, N.; ANTES, H. W. — Mechanical Properties of Cast Titanium-Iron and Titanium-Aluminum-Iron Alloys 374

EDELMAN, R. E.; OWENS, R. K.; ANTES, H. W. — Effect of Nitrogen and Vacuum Degassing on Properties of a Cast Aluminum-Silicon-Magnesium Alloy (Type 356) .. 424

EDELMAN, R. E.; FEILD, A. L., JR. — The Use of Expendable Graphitic Molds in the Production of Sound, Ductile Titanium Castings 517

ENGQUIST, R. D. — Effect of Carbon and Manganese on Properties of Constructural Steels for Dynamic Loading Applications 419

EVANS, E. B.; WALLACE, J. F. — Gating of Gray Iron Castings 267

FEILD, A. L., JR.; EDELMAN, R. E. — The Use of Expendable Graphite Molds in the Production of Sound, Ductile Titanium Castings 517

FLEMINGS, M. C.; TAYLOR, H. F.; NIESSE, J. E. — Fluidity of a Series of Magnesium Alloys 207

FLEMINGS, M. C.; NORTON, P. J.; TAYLOR, H. F. — Performance of Chills on High Strength-High Ductility Sand-Mold Castings of Various Section Thicknesses 259

FLEMINGS, M. C.; NORTON, P. J.; TAYLOR, H. F. — Rigging Design of a Typical High Strength, High Ductility Aluminum Casting 550

FLINN, R. A.; TROJAN, P. K. — Pressure Tightness in 85-5-5-5 Bronze Castings 238

FLOREEN, S.; RAGONE, D. V. — The Fluidity of Some Aluminum Alloys 391

FREEDMAN, A. H.; WALLACE, J. F. — The Influence of Vibration on Solidifying Metals 578

FRENCH, A. H. R.; MANTLE, E. C. — Cooperation for Technical Advancement in the British Bronze Foundry Industry.. 31

GILBERT, G. N. J. — Temper Embrittlement in Nodular Iron 49

GOTTSCHALK, G.; BRINKMANN, N. D. — Effect of Temperature on the pH of Foundry Sands 84

GREDE, W. J. — Development of Foundry Management 233

GROSS, A. F. — Hydrogen as it Affects Steel Castings 365

HARRIS, R. C.; LIPSON, S.; SULINSKI, H. V. — Effect of Small Tin and Cadmium Additions to Aluminum-Copper Alloys 282

HEHNER, N.; ANTES, H. W.; EDELMAN, R. E. — Mechanical Properties of Cast Titanium-Iron and Titanium-Aluminum-Iron Alloys 374

HEINE, R. W.; KING, E. H.; SCHUMACHER, J. S. — How to Determine Moisture Requirements of Molding Sands..... 118

HEINE, R. W.; KING, E. H.; SCHUMACHER, J. S. — Mold Hardness: What It Means! 123

HEINE, R. W.; BELTER, E. H. — Effects of Charge Materials and Melting Conditions on Properties of Malleable Iron 134

HENRY, J. J. — Quality Control in a Small Foundry 146

HENRY, J. J. — Quality Control for the Foundry Foreman ... 177

HLINKA, J. W.; PASCHKIS, V. — Some Generalized Solidification Studies 222

HLINKA, J. W.; PASCHKIS, V. — Temperature Drop in Pouring Ladles — Part II 276

HOWELLS, N. C.; MOREY, R. E.; BISHOP, H. F. — Properties of Molding Sands Under Conditions of Gradient Heating 402

HOWELLS, N. C.; LANGE, E. A. — Fracture Characteristics of Copper-Base Alloys 462

HROMI, J. D.; DAVIS, C. J. — Use of Fractional Factorial Designs in Sintering Experiments 352

HURUM, F. — Effect of Ferrosilicon and Magnesium Inoculation on Nuclei Formation in Cast Iron 66

AUTHORS' INDEX

ACKERLIND, C. G.; PELLINI, W. S.; BISHOP, H. F. — Investigation of Metallurgical and Mechanical Effects in the Development of Hot Tearing 247

ADAMS, C. M., JR.; TAYLOR, H. F. — Flow of Heat from Sand Castings by Conduction, Radiation, and Convection... 170

ADAMS, C. M.; TAYLOR, H. F.; SULLIVAN, E. J., JR. — Transport of Feed Metal During Solidification of Tapered Steel Bars 394

AHEARN, P. J.; WALLACE, J. F.; QUIGLEY, F. — Influence of Various Bonding Materials on Stress-Strain Characteristics of Bonded Sands 319

AFS PEARLITIC MALLEABLE COMMITTEE (6-E) — Comparison of Properties of Liquid- and Air-Quenched Pearlitic Malleable Irons — Part II — Duplex, Cold-Melt Process and Alloyed Pearlitic Malleable Irons 304

AFS SAND DIVISION COMMITTEE (8-J) — Correlation Between Casting Surface and Hot Properties of Molding Sands.. 128

AFS SAND DIVISION COMMITTEE (8-L) — Scabbing of Steel Molding Sands 235

ANTES, H. W.; EDELMAN, R. E.; HEHNER, N. — Mechanical Properties of Cast Titanium-Iron and Titanium-Aluminum-Iron Alloys 374

ANTES, H. W.; EDELMAN, R. E.; OWENS, R. K. — Effect of Nitrogen and Vacuum Degassing on Properties of a Cast Aluminum-Silicon-Magnesium Alloy (Type 356) 424

BARNETT, G., SIR — Health and Safety in Foundries..... 17

BARR, H. F. — An Automotive Engineer Views the Foundry 161

BELTER, E. H.; HEINE, R. W. — Effects of Charge Materials and Melting Conditions on Properties of Malleable Iron 134

BENNETT, F. C.; BURKETT, F. L. — Automatic Metering of Magnesium for Cold Chamber Die Casting 166

BISHOP, H. F.; ACKERLIND, C. G.; PELLINI, W. S. — Investigation of Metallurgical and Mechanical Effects in the Development of Hot Tearing 247

BISHOP, H. F.; HOWELLS, N. C.; MOREY, R. E. — Properties of Molding Sands Under Conditions of Gradient Heating 402

BOCK, W. K.; JOHNSON, H. H. — Investigation of the Effect of Processing Variables on Mechanical Properties of Pearlitic Malleable Iron 450

BORNSTEIN, H. — Progress in Iron Castings 1

BRINKMANN, N. D.; GOTTSCHALK, G. — Effect of Temperature on the pH of Foundry Sands 84

BURKETT, F. L.; BENNETT, F. C. — Automatic Metering of Magnesium for Cold Chamber Die Casting 166

BURTON, H. A. — Plastics in Patternmaking 432

COLWELL, D. L.; KISSLING, R. J. — Corrosion of Aluminum Die Castings 140

DALTON, R. F. — Intricate Small Diameter Coring of Aluminum and Magnesium Alloy Sand Castings 483

DAVIS, C. J.; HROMI, J. D. — Use of Fractional Factorial Designs in Sintering Experiments 352

DAVIS, J. A.; KRAUSE, D. E.; LOWNIE, H. W., JR. — Tin as an Alloy in Gray Cast Iron 590

DEMOSS, N. P. — A Foundry Application of the Master Control System 157

DEROSS, A. B. — Aging Practices for High Strength Ductile Aluminum Alloy HP356 565

DISYLVESTRO, G. — Practical Studies in Veining Tendencies.. 323

DODD, R. A.; POLLARD, W. A.; MEIER, J. W. — Hot Tearing of Magnesium Casting Alloys 100

DOLBY, J. L. — Administrative Engineering Applications of Statistical Methods 155

EDELMAN, R. E.; HEHNER, N.; ANTES, H. W. — Mechanical Properties of Cast Titanium-Iron and Titanium-Aluminum-Iron Alloys 374

EDELMAN, R. E.; OWENS, R. K.; ANTES, H. W. — Effect of Nitrogen and Vacuum Degassing on Properties of a Cast Aluminum-Silicon-Magnesium Alloy (Type 356) .. 424

EDELMAN, R. E.; FEILD, A. L., JR. — The Use of Expendable Graphitic Molds in the Production of Sound, Ductile Titanium Castings 517

ENGQUIST, R. D. — Effect of Carbon and Manganese on Properties of Constructural Steels for Dynamic Loading Applications 419

EVANS, E. B.; WALLACE, J. F. — Gating of Gray Iron Castings 267

FEILD, A. L., JR.; EDELMAN, R. E. — The Use of Expendable Graphite Molds in the Production of Sound, Ductile Titanium Castings 517

FLEMINGS, M. C.; TAYLOR, H. F.; NIESSE, J. E. — Fluidity of a Series of Magnesium Alloys 207

FLEMINGS, M. C.; NORTON, P. J.; TAYLOR, H. F. — Performance of Chills on High Strength-High Ductility Sand-Mold Castings of Various Section Thicknesses 259

FLEMINGS, M. C.; NORTON, P. J.; TAYLOR, H. F. — Rigging Design of a Typical High Strength, High Ductility Aluminum Casting 550

FLINN, R. A.; TROJAN, P. K. — Pressure Tightness in 85-5-5-5 Bronze Castings 238

FLOREEN, S.; RAGONE, D. V. — The Fluidity of Some Aluminum Alloys 391

FREEDMAN, A. H.; WALLACE, J. F. — The Influence of Vibration on Solidifying Metals 578

FRENCH, A. H. R.; MANTLE, E. C. — Cooperation for Technical Advancement in the British Bronze Foundry Industry.. 31

GILBERT, G. N. J. — Temper Embrittlement in Nodular Iron 49

GOTTSCHALK, G.; BRINKMANN, N. D. — Effect of Temperature on the pH of Foundry Sands 84

GREDE, W. J. — Development of Foundry Management 233

GROSS, A. F. — Hydrogen as it Affects Steel Castings 365

HARRIS, R. C.; LIPSON, S.; SULINSKI, H. V. — Effect of Small Tin and Cadmium Additions to Aluminum-Copper Alloys 282

HEHNER, N.; ANTES, H. W.; EDELMAN, R. E. — Mechanical Properties of Cast Titanium-Iron and Titanium-Aluminum-Iron Alloys 374

HEINE, R. W.; KING, E. H.; SCHUMACHER, J. S. — How to Determine Moisture Requirements of Molding Sands..... 118

HEINE, R. W.; KING, E. H.; SCHUMACHER, J. S. — Mold Hardness: What It Means! 123

HEINE, R. W.; BELTER, E. H. — Effects of Charge Materials and Melting Conditions on Properties of Malleable Iron 134

HENRY, J. J. — Quality Control in a Small Foundry 146

HENRY, J. J. — Quality Control for the Foundry Foreman ... 177

HLINKA, J. W.; PASCHKIS, V. — Some Generalized Solidification Studies 222

HLINKA, J. W.; PASCHKIS, V. — Temperature Drop in Pouring Ladles — Part II 276

HOWELLS, N. C.; MOREY, R. E.; BISHOP, H. F. — Properties of Molding Sands Under Conditions of Gradient Heating 402

HOWELLS, N. C.; LANGE, E. A. — Fracture Characteristics of Copper-Base Alloys 462

HROMI, J. D.; DAVIS, C. J. — Use of Fractional Factorial Designs in Sintering Experiments 352

HURUM, F. — Effect of Ferrosilicon and Magnesium Inoculation on Nuclei Formation in Cast Iron 66

ISLEIB, C. R.; SAVAGE, R. E. — Ductile Iron-Alloyed and Normalized 75

JOHNSON, H. H.; BOCK, W. K. — Investigation of the Effect of Processing Variables on Mechanical Properties of Pearlitic Malleable Iron 450
JOHNSON, W. H. — Effects of Geometry on the Properties of Gun-Metal (88-8-4) Castings — A Progress Report 314

KEVERIAN, J.; TAYLOR, H. F. — Effects of Gaseous and Solid Addition Elements on Surface Tension and Contact Angle (on Graphite) of Various Iron-Carbon Alloys... 212
KHAN, A. U.; MCCLURE, N. C.; MCGRADY, D. D.; WOMOCHEL, H. L. — Inoculation of Gray Cast Iron — Relative Effectiveness of Some Silicon Alloys and Active Metals as Ladle Additions 340
KINDT, E. T. — European Foundries and Pattern Shops 94
KING, E. H.; HEINE, R. W.; SCHUMACHER, J. S. — How to Determine Moisture Requirements of Molding Sands 118
KING, E. H.; HEINE, R. W.; SCHUMACHER, J. S. — Mold Hardness: What It Means! 123
KISSLING, R. J.; COLWELL, D. L. — Corrosion of Aluminum Die Castings 140
KOERNER, C. A. — New Foundry Testing Methods 181
KRAUSE, D. E.; LOWNIE, H. W., JR.; DAVIS, J. A. — Tin as an Alloy in Gray Cast Iron 590
KURA, J. G.; SHIPPEREIT, G. H.; LANG, R. M. — Status of the Technology for Casting Titanium 499

LANG, R. M.; KURA, J. G.; SHIPPEREIT, G. H. — Status of the Technology for Casting Titanium 499
LANGE, E. A.; HOWELLS, N. C. — Fracture Characteristics of Copper-Base Alloys 462
LEE, G. L. — Production and Properties of Aluminum Alloyed Cast Cupro-Nickel 570
LE THOMAS, P. J. — Relation of Microhardness and Stresses in Copper Alloys 41
LIPSON, S.; SULINSKI, H. V.; HARRIS, R. C. — Effect of Small Tin and Cadmium Additions to Aluminum-Copper Alloys 282
LOGAN, T. — Castings from the Users Standpoint 97
LOWNIE, H. W., JR.; DAVIS, J. A.; KRAUSE, D. E. — Tin as an Alloy in Gray Cast Iron 590

MCCLURE, N. C.; KHAN, A. U.; MCGRADY, D. D.; WOMOCHEL, H. L. — Inoculation of Gray Cast Iron — Relative Effectiveness of Some Silicon Alloys and Active Metals as Ladle Additions 340
MCGRADY, D. D.; MCCLURE, N. C.; KHAN, A. U.; WOMOCHEL, H. L. — Inoculation of Gray Cast Iron — Relative Effectiveness of Some Silicon Alloys and Active Metals as Ladle Additions 340
MCQUISTON, C. E. — Influence of Sand Grain Distribution on Green-Sand Casting Finish 188
MAITRE, J.; TAYLOR, H.; REYNOLDS, C. — Feed Metal Requirements for Ductile Iron Castings 386
MANTLE, E. C.; FRENCH, A. H. R. — Cooperation for Technical Advancement in the British Foundry Industry 31
MASON, W. E. — Metal Core Box Equipment 443
MEGAW, R. G.; MIERICKE, K. A. — Oil Bonded Molding Sand 513
MEIER, J. W.; DODD, R. A.; POLLARD, W. A. — Hot Tearing of Magnesium Casting Alloys 100
MIERICKE, K. A.; MEGAW, R. G. — Oil Bonded Molding Sand 513
MILLER, J. L.; STICKLEY, G. W. — Fatigue Properties of Two Aluminum Die-Casting Alloys 292
MOREY, R. E.; BISHOP, H. F.; HOWELLS, N. C. — Properties of Molding Sands Under Conditions of Gradient Heating 402
MORGENSTERN, D. — Vacuum Die Casting 494
MOSER, F. — European Self-Curing Oil Binders 469
MURTON, A. E. — Effect of Various Clays and of Tempering Method on Sand Properties and Casting Quality..... 379

NIESSE, J. E.; FLEMINGS, M. C.; TAYLOR, H. F. — Fluidity of a Series of Magnesium Alloys 207
NORTON, P. J.; TAYLOR, H. F.; FLEMINGS, M. C. — Performance of Chills on High Strength-High Ductility Sand-Mold Castings of Various Section Thicknesses 259
NORTON, P. J.; TAYLOR, H. F.; FLEMINGS, M. C. — Rigging Design of a Typical High Strength, High Ductility Aluminum Casting 550

OLSON, R. L. — Engineering Aids for Sealing Core Boxes Against Blow-By 471
OWENS, R. K.; ANTES, H. W.; EDELMAN, R. E. — Effect of Nitrogen and Vacuum Degassing on Properties of a Cast Aluminum-Silicon-Magnesium Alloy (Type 356) 424

PASCHKIS, V.; HLINKA, J. W. — Some Generalized Solidification Studies 222
PASCHKIS, V.; HLINKA, J. W. — Temperature Drop in Pouring Ladles — Part II 276
PELLINI, W. S.; BISHOP, H. F.; ACKERLIND, C. G. — Investigation of Metallurgical and Mechanical Effects in the Development of Hot Tearing 247
PETERSEN, R. A. — Materials Handling in the Foundry..... 488
POLLARD, W. A.; MEIER, J. W.; DODD, R. A. — Hot Tearing of Magnesium Casting Alloys 100

QUIGLEY, F.; AHEARN, P. J.; WALLACE, J. F. — Influence of Various Bonding Materials on Stress-Strain Characteristics of Bonded Sands 319

RAGONE, D. V.; FLOREEN, S. — The Fluidity of Some Aluminum Alloys 391
RANDOLPH, L. L. — Use of Memomotion in Setting Foundry Standards 151
REYNOLDS, C.; MAITRE, J.; TAYLOR, H. — Feed Metal Requirements for Ductile Iron Castings 386
ROTH, J. F. — The Patternmakers Application of Plastics in Industry 232

SANDELIN, R. W. — Some Observations on Galvanizing Embrittlement of Malleable Iron 409
SAVAGE, R. E.; ISLEIB, C. R. — Ductile Iron — Alloyed and Normalized 75
SCHEUER, E. — Controlled Gas Content in Foundry Work.... 534
SCHIPPEREIT, G. H.; LANG, R. M.; KURA, J. G. — Status of the Technology for Casting Titanium 499
SCHNEIDER, A. M. — Statistical Techniques for the Attainment of Optimum Processing Conditions 438
SCHULLER, G. W. — Economical Casting Design and Production 357
SCHUMACHER, J. S.; HEINE, R. W.; KING, E. H. — How to Determine Moisture Requirements of Molding Sands 118
SCHUMACHER, J. S.; HEINE, R. W.; KING, E. H. — Mold Hardness: What It Means! 123
SINCLAIR, R. B. — Improving Foundry Layout 523
SPRINKLE, J. K.; TAYLOR, H. F. — Adhesion of Phenol-Formaldehyde to Various Refractory Oxides 300
STICKLEY, G. W.; MILLER, J. L. — Fatigue Properties of Two Aluminum Die-Casting Alloys 292
SULINSKI, H. V.; HARRIS, R. C.; LIPSON, S. — Effect of Small Tin and Cadmium Additions to Aluminum-Copper Alloys 282
SULLIVAN, E. J., JR.; ADAMS, C. M.; TAYLOR, H. F. — Transport of Feed Metal During Solidification of Tapered Steel Bars 394

TATUM, G. B. — Carbon Refractories 543
TAYLOR, H.; REYNOLDS, C.; MAITRE, J. — Feed Metal Requirements for Ductile Iron Castings 386
TAYLOR, H. F.; ADAMS, C. M., JR. — Flow of Heat from Sand Castings by Conduction, Radiation, and Convection 170

TAYLOR, H. F.; NIESSE, J. E.; FLEMINGS, M. C. — Fluidity of a Series of Magnesium Alloys 207

TAYLOR, H. F.; KEVERIAN, J. — Effects of Gaseous and Solid Addition Elements on Surface Tension and Contact Angle (on Graphite) of Various Iron-Carbon Alloys 212

TAYLOR, H. F.; FLEMINGS, M. C.; NORTON, P. J. — Performance of Chills on High Strength-High Ductility Sand — Mold Castings of Various Section Thicknesses 259

TAYLOR, H. F.; SPRINKLE, J. K. — Adhesion of Phenol-Formaldehyde to Various Refractory Oxides 300

TAYLOR, H. F.; SULLIVAN, E. J., JR.; ADAMS, C. M. — Transport of Feed Metal During Solidification of Tapered Steel Bars 394

TAYLOR, H. F.; NORTON, P. J.; FLEMINGS, M. C. — Rigging Design of a Typical High Strength, High Ductility Aluminum Castings 550

THOMAS, H. — Austentic Manganese Steel Technology in an Australian Foundry 36

TROJAN, P. K.; FLINN, R. A. — Pressure Tightness in 85-5-5-5 Bronze Castings 238

WAGNER, J. A. — An Appeal to Foundry Executives 478

WALLACE, J. F.; EVANS, E. B. — Gating of Gray Iron Castings 267

WALLACE, J. F.; QUIGLEY, F.; AHEARN, P. J. — Influence of Various Bonding Materials on Stress-Strain Characteristics of Bonded Sands 319

WALLACE, J. F.; FREEDMAN, A. H. — The Influence of Vibration on Solidifying Metals 578

WEBER, H. J. — Legislation Affecting Foundries 228

WOMOCHEL, H. L.; MCCLURE, N. C.; KHAN, A. U.; MCGRADY, D. D. — Inoculation of Gray Cast Iron — Relative Effectiveness of Some Silicon Alloys and Active Metals as Ladle Additions 340

YOUNG, M. K. — Wear Characteristics of Epoxy Pattern Materials 556

ZUPPANN, E. C. — New Techniques for Finding "Come and Go" Causes that Affect Quality 88

SUBJECT INDEX

A

Additions
Moisture requirements, sand 120
Silica flour effect, sand 404
Tin and cadmium in aluminum-copper alloys 282
Tin effect in gray iron.593, 594, 595, 596
Veining, effect on 330
AFS
Research reports 235, 238, 276, 304
Aging
Temperature vs. hardness, aluminum-copper alloys 285
Time vs. hardness, aluminum-copper alloys.....284, 285
Air pollution
Legislation 228
Alloys
Aluminum alloyed cupro-nickel.....570
Aluminum, chill effect 259
Aluminum, fatigue 292
Aluminum, HP 356 565
Aluminum-silicon-magnesium, properties effected 424
Copper, fracture 462
Die cast 124
Ductile iron 75
Gray iron 2
Impact energy 465
Magnesium 208, 210
Magnesium, hot tearing 100
Rare earths 210
Small diameter coring 483
Strength, hot tearing 250
Ternary 103, 104, 106, 210
Tin and cadmium additions in 282
Tin in gray iron 590
Titanium, mechanical properties ...374
Aluminum
Aging practices, HP 356 565
Aircraft parts 516
Alloyed cast cupro-nickel 570
As an addition 346
-Bronzes, impact energy 465
Casting rigging design 550
Chill effect 259
-Copper 47
-Copper, tin and cadmium additions in 282
Corrosion, castings 140
Fatigue 292
Fluidity of Alloys 391
In automobiles 163
Small diameter coring 483
-Titanium-iron, properties 375
Annealing
Furnace atmosphere effect, iron 453
Malleable iron 137
ASTM
Aluminum work, corrosion 140
Specifications, malleable iron 7, 304
Austenitic
Iron 3
Manganese steel 36
Austenitic (continued)
Nodular iron 12
Temperature effect, iron 454
Automation
General 15
Magnesium metering 166

B

Bentonite
Southern 124
Western 124
Binders
European, self-curing 469
Bismuth
Additions 5
Blocks
Breast, cupola 546
Blow-By
Aids to prevent 471
Boron
Oxidation of 138
Boxes, core
Metal, equipment 443
Sealing against blow-by 471
Brass
Fatigue 42
Strength, tensile 43
Brinell hardness
Control 14
Ductile iron 77, 78
Malleable iron.....414, 458, 459
Titanium alloys 376, 378
Bronze
Alloys, impact energy 465
British foundry 31
Pressure tightness 238

C

Cadmium
and tin in aluminum-copper alloys..282
Carbon
and manganese effect, steel 419
Refractories 543
Castings
Aluminum alloyed cupro-nickel 570
Aluminum-silicon, properties effected 424
Automotive 3
Bronze 238
Clay and tempering effect on 379
Cleaning, manganese steel 38
Ductile, feed metal requirements ...386
Economical design 357
Geometry effects 314
Magnesium 166, 485
Pattern, mold 129
Properties 135
Small diameter coring, alloy 483
Steel, hydrogen effects 365
Titanium, technology status 499
Tractor 15
Vacuum Die 494
Cast iron
Anneability 137
Austenitic 3
Automotive 3
Cast iron (continued)
From users' view 97
Gray 1, 161, 267, 340, 590
Inoculation 66
Malleable 4, 135, 137
Nodular 9
Pearlitic 6
Range of 2, 4
Selection, material 4
Shell molding 15
Specifications 1
Tin as an alloy in 590
White and chilled 4
Charge
Malleable iron
Material and melting effects 134
Residual elements 137
Charpy impact
Alloys, data 464
Aluminum 140, 142
Ductile iron 76
Steel 419, 420, 421
Chills
On ductile castings 259
Sand mold, aluminum castings 550
Chromium
Anneability 5
Clays
Effect on sand and castings 379
Comparator
Metals 187
Composition
Chemical
Aluminum-copper alloys 284
Charge 134
Gray iron 595
Sand 86
Vibration 579
Copper ingot 46
Ductile iron 75
Mold, titanium 508
Nodular iron 55
Conditions
Ingot vibration 579
Melting, malleable iron 135
Optimum processing, statistics 438
Surface effect, iron 459
Conduction
From sand castings 170
Contact angle
Gaseous and solidification effects....212
Contamination
Titanium casting surface 500, 506
Contraction
Tests, hot tearing
Restrained 250
Unrestrained 250
Control
Chemical, manganese steel 38
Gas content 534
Master system 150, 177
Quality 146
Convection
From sand castings 170

Copper
Alloys, stresses 41
-Aluminum, fatigue 47
-Aluminum, tin and cadmium in ...282
Electrolytic test 42, 43
Fatigue test 44
Fracture characteristics 462
Hot-rolled ingot 46
-Nickel, aluminum alloyed 570
-Phosphor, fatigue 45
-Silicon, impact energy 465
Core boxes
Metal, equipment 443
Sealing against blow-by 471
Cores
Carbon dioxide hardened 104
Effect, veining 324
Manganese steel 37
Small diameter, alloy 483
Steel 103, 105, 106
Corrosion
Aluminum castings 140
Resistance, aluminum cupro-nickel..575
Crucible
Materials, titanium castings 503
Crystals
Deformed, cupro-aluminum 47
Cupola
General 12
Lining, maintenance 548
Refractories, carbon 544
Slag, colored 92
Well-zone linings 544

D

Deformed
Crystals, cupro-aluminum 47
Degassing
Vacuum, alloy, nitrogen effect 424
Designs
Castings
Aluminum, rigging 550
Bronze 240
Economical 357
Titanium 509
Factorial, sintering 352
Dilatometer
Modified sand 402
Distribution
Sand grain, green sand 188
Dry sand
vs. green sand, bronze 245
Ductile
Aluminum
Aging practices 565
Casting rigging design 550
Iron
Alloyed and normalized 75
Commercial 10
Feed metal requirements 386
Shell molding 15
Titanium
Graphite mold 517

E

Economy
Casting design and production.....357
Electrode
Titanium
Consumable 500, 501
Fixed 500, 501
Electronic
Testing 185
Embrittlement
Galvanizing, malleable iron 409
Hydrogen 369
Energy
Interfacial 212
Engineering
Aids, against blow-by 471
Epoxy
Pattern materials, wear 556
Equations
Adhesion to refractory oxides ..300, 301
Air pollution 228, 229
Arithmetical av. height 206
Bartlet's 203
Binary alloys 209
Fractional factorial designs 353
Gray iron gating..271, 272, 273, 274, 275
Heat flow, sand castings ..170, 171, 172, 174, 175
Interfacial energy 212
No skew, sand grain 203
Sand grain distribution ...203, 204, 206
Skew right, sand grain 204
Solidification 400, 401
Surface roughness 206
Young's 213
Equipment
Metal core box 443
Executives
Foundry, appeal to 478

F

Fabrication
Titanium mold, graphite 518
Factorial
Fractional designs, sintering 352
Fatigue
Aluminum alloys 47, 292
Brass 42
Copper 44, 45, 47
Feed
Metal requirements, ductile iron ...386
Ferrosilicon
Inoculation, cast iron 66
Fiber glas
Refractory sleeves 484
Fissures
Intercrystalline, brass 42, 44, 45
Oxidation, cast brass 45
Trascrystalline, phosphor-brass 44
Flow
Heat, from sand castings 170
Fluidity
Aluminum alloys 391
Foundry
Appeal to executives 478
Automotive engineer views 161
Controlled gas content 534
European 94
Layout, improving 523
Legislation affecting 228
Management development 233
Master control system 157
Materials handling 488
Memomotion in standards 151
New testing methods 181
Quality control 146
Sand, hardness and strength 123
Fractures
Appearance, malleable iron 410, 411, 412, 413
Characteristics, copper alloys 462
Fisheye, steel 369
Nodular iron 53, 54
Furnace
Annealing, atmosphere effect 453
Titanium
Consumable-electrode 500
Fixed-electrode 500
Induction-melting 500, 503
Operation 521
Skull-melting 501
Variations 502

G

Galvanizing
Embrittlement, malleable iron.....409
Gas
Content, controlled 534
Gating
Alloys, marine 576
Control 14
Gray iron 267
Geometry
Effects on gun-metal castings 314
Graphite
Absence 5
Injection tubes 549
Interfacial energy, melt 213
Molds, titanium 517
Silicon relation 137, 138
Gray iron
Alloy 2
Austenitic 3
Automotive 3, 161
Effect, charpy impact, tin in 595
Gating of 267
Grain size, inoculants effect 347
Inoculation of 2, 66, 340
Malleable 4
Nodular 9
Pearlitic 6
Progress in 1
Range of 2, 4
Selection of materials 4
Shell molding 15
Specifications 1
Tin as an alloy in 590
White and chilled 4
Green
Sand castings 188
Sand vs. dry sand, bronze 245
Strength and mold hardness....123, 124
Gun metal
Geometry effects on 314

H

Hardness
Mold
vs. compressive strength 514
vs. permeability 515
vs. rams 515
vs. aging temperature, Aluminum-copper alloys 285
vs. aging time, Copper alloys 284, 285
Heat
Flow from castings 170
Molding sand properties under 402
Treatment
Manganese steel 37
Quenched pearlitic malleable iron 305
Hot tearing
Correlation of heat with 406
Magnesium alloys 100
Metallurgical, mechanical, effects....247
Hoyt
Charles Edgar, memorial lecture.... 1
Hydrogen
As it affects steel castings 365
Hygiene, foundry
British
Over-all 18
Problem 18
Requirements 17
Pollution, air, legislation 228

I

Impact, charpy
Aluminum 141, 142
Ductile iron 76
Effect, tin in gray iron 595
Malleable iron 414
Titanium alloys 375, 376, 377
Injection
Calcium carbide 13
Carbide 13
Tubes, graphite 549

Inoculants
Effect on grain size 347
Ferrosilicon and magnesium in cast iron 66
Gray iron 2, 340
Intercrystalline
Fissures, brass 42, 44, 45
Interfacial
Graphite-melt approach 213
Influence of energy and adsorbant...212
Investment
Molds, titanium 507
Iron, cast
Austenitic 3
Automotive 3
From users' view 97
Gating of gray 267
Gray 1, 161, 267, 340, 590
Inoculation of gray 340
Inoculants, ferrosilicon and magnesium 66
Malleable 4
Nodular 9
Pearlitic 6
Progress in gray 1
Range of 2, 4
Selection of material 4
Shell molding 15
Specifications 1
Tin as an alloy in 590
Titanium alloy, mechanical properties 374
White and chilled 4
Iron, ductile
Feed metal requirements 386
General 10
Iron, gray
Alloy 2
Austenitic 3
Automotive 3, 161
Effect, charpy impact, tin in 595
Gating of 267
Grain size, inoculants effect 347
Inoculation of 2, 66, 340
Malleable 4
Nodular 9
Pearlitic 6
Progress in 1
Range of 2, 4
Selection of materials 4
Shell molding 15
Specifications 1
Tin as an alloy in 590
White and chilled 4
Iron, malleable
Effect of variables on 450
Galvanizing embrittlement 409
General 4
Iron, nodular
Castings 8
Production 9
Shell molding 15
Specifications 9

K

Key
Blocks, cupola 546

L

Ladles
Calcium additions 346
Manganese steel 37
Temperature drop 276
Layout
Foundry, improving 523
Legislation
Affecting foundries 228
Load
Sand
Restraining 131
Shock expansion 132

M

Machine
Control factors 178
Macrographs
Hot tearing
Copper-base alloys 257
Magnesium 107, 108, 109, 112
Macrophotos
Core sand surfaces 327
Macrostructures
Hot tearing
Copper-base alloys 257
Magnesium 107, 108, 109, 112
Solidifying metals, vibration effect 581, 582, 583, 584, 585, 586
Magnesium
Additions 8
Alloys 208, 210
Aluminum-silicon properties effected 424
Castings 485
Fluidity of alloys 207
Hot tearing 100
Inoculation, cast iron 66
Metering, automatic 166
Small diameter coring 483
Susceptibility, hot tearing.....106, 107
Maintenance
Cupola lining 548
Malleable iron
Anneability 137
ASTM specifications 7
Effect of variables 450
Galvanizing embrittlement 409
Gray iron 4
Materials and melting effects 134
Properties, quenched pearlitic 304
Management
Foundry, Development 233
Manganese
And carbon effect, steel 419
-Bronzes, impact energy 465
-Steel, austenitic 36
Manpower
Control factors 178
Marine
Aluminum alloyed cupro-nickel 570
Markets
Potential, titanium 500, 510
Materials
Bonding, influence on sand 319
Control, quality 178
Handling 488
Selection, gray iron
Annealing cycles 5
Composition 5
Pearlitic 6
Mechanical
And metallurgical effects, hot tearing 247
Properties
Gray iron, tin effect 591
Titanium alloys 374
Variables, effects 450
Melting
Alloys, marine 575
Aluminum castings 552
And charge effects 134
Bronze, pressure tightness 240
Conditions 135
Equipment, marine alloys 576
Methods 36
Memomotion
In setting standards 151
Metal
Comparator 187
Core box equipment 443
Solidifying, vibration effects 578
Metallography
Manganese steel 39
Metallography (continued)
Solidifying metals, Vibration effect 581, 582, 583, 584, 585, 586
Metallurgical
Hot tearing
Mechanical effects 247
Methods
Control factors 178
Statistical 155
Testing 181
Micrographs
Aluminum-copper alloy 289
Black heart malleable iron 50
Bronze, pressure tightness 243
Cast iron 67, 68, 69, 70, 71, 72, 73
Ductile iron 77, 78
Fractured shell mold 300
Hot-rolled brass 46
Nodular iron 50
Phosphor-brass 41
Tin in gray iron 591, 592, 596
Vacuum-cast brass 41
Microhardness
Relation to stresses 41
Test, titanium 520
Microporosity
In cast steel 368
Microstructure
Beta iron-silicon constituent 566
Malleable iron 415
Tin effect
Cast iron 595
Nodular iron 596
Microstructures
Blackheart malleable iron 50
Cast iron 67, 68, 69, 70, 71, 72, 73
Ductile iron 77, 78
Gray iron inoculants 343, 344
Hot-rolled brass 46
Hot tearing, magnesium 110, 111, 112, 114
Intercrystalline fissures, brass..42, 44, 45
Nickel alloys 574
Nodular iron 50, 220
Phosphor-brass 41
Silicon in aluminum-copper alloy...289
Silicon in gray iron 349, 350
Solidifying metals, vibration 581, 582, 583, 584, 586, 587
Tin in gray iron 591, 592, 596
Transcrystalline fissures, brass 44
Vacuum-cast brass 41
Vacuum melting 217, 218
Mold
Operation, filming of 152
Pattern, casting 129
Plan for economy 359
Preparation, aluminum 551
Sand
Complex alloys 103
Composition 129
Dry 37
Green 15
Hot properties 128
Moisture requirements 118
Oil bonded 513
pH 87
Properties under heating 402
Steel, scabbing 235
Thermal properties 172
Shell 15
Titanium
Baked refractory 506
Carbon 505
Composition 508
Expendable 500
Graphite 517
Investment 507
Machined graphite 500, 505

Mold, titanium (continued)
Proprietary 508
Shell 505
Mold hardness
What it means 123
vs. compressive strength 514
vs. permeability 515
vs. rams 515
Molybdenum
Effect, ductile iron 80, 81, 82
Influence, nodular iron 59

N

Nickel
Cupro-, aluminum alloyed 570
Effect, ductile iron 79, 80, 81, 82, 83
Nitrogen
And degassing effect, alloy 424
Nodular iron
Alloyed and normalized 75
Castings 8
Ductile 10
Melting 14
Microstructure, tin effect 596
Production 9
Specifications 9
Temper embrittlement 49
Normalized
Nodular iron 75
Number
AFS 119, 120, 121

O

Oil
Bonded molding sand 513
Self-curing binders, European 469
Oxidation
Boron and titanium 138
Oxides
Refractory, adhesion of 300

P

Parameter
Dimensionless concept 228
Pattern
Epoxy materials, wear 556
-maker's interest, design 363
-making, plastics 432
Molds, castings 129
One-flash molded 172
Plastics, application 232
Shops, European 94
Pearlitic iron
Effect of variables 450
Malleable 6
Quenched, properties 304
pH
Sand 84
Phenol-formaldehyde
Adhesion, refractory oxides 300
Phosphorus
Effect, malleable iron properties 136
Influence, nodular iron 51
Mechanical properties after adjustment 136
Photomicrographs
Aluminum-copper alloy 289
Cast iron 67, 68, 69, 70, 71, 72, 73
Ductile iron 77, 78
Fractured shell mold 300
Vacuum cast steel 497
Vacuum, non-vacuum, die castings..496
Plastics
Epoxy pattern materials, wear 556
In pattern making 432
Patternmakers application 232
Pollution
Air, legislation 228
Atmospheric 230
Potential
Markets, titanium 500, 510
Pouring
Temperature, titanium 504
Pressure tightness
85-5-5-5 bronze castings 238
Processing
Commercial, titanium 499
Conditions, statistics 438
Variables, effect of 450
Production
Aluminum alloyed cupro-nickel 570
Economical casting design and.....357
Profilometer
Tracing, sand grain distribution 192, 200
Properties
Aluminum alloyed cupro-nickel 570
Chemical, malleable iron 135
Constructural steel, alloy effect 419
Geometry effects, gun metal 314
Hot, Sand 128
Malleable iron, effects on 134
Mechanical
Aluminum castings 553
Gray iron, tin effect 591
Malleable iron 136
Variables, effect on 450
Nitrogen and degassing effect 424
Physical, carbon shapes 544
Sand, clay and tempering effect 379
Solidification 226
Temperature, sand 129
Thermal, sand mold 172

Q

Quality
Come and go, causes, effect 88
Control 146, 177
Effect of clay and tempering on 379
Quantity
Thermal 174
Quenching
Malleable iron 455

R

Radiation
From sand castings 170
Radiographs
Hot tearing 250, 251
Solidification 397, 398, 399
Valve casting, titanium 520
Radiography
General 181
Results, solidification 396
Rare earths
Hot tearing 111
Refractory
Adhesion to oxides 300
Baked molds, titanium 506
Carbon 543
Sleeves, fiber glas 484
Veining, effect on 330
Requirements
Feed metal, ductile iron 386
Residue
Elements, malleable iron 138
Resin
Plastics in patternmaking 432
Ringelmann
Chart 228
Risers
Alloy, marine 576
Control 14
Effect, bronze 246
Influence, aluminum 551
Radiation, convection 172

S

Safety, foundry
British 17
Overall 27
Problem 18
Requirements 17
Sand
Casting
Austenitic iron 3
Automotive 3
Pattern, mold 129
Small diameter coring 483
Foundry
Composition 129
Green strength 123
Hot properties 128
Influence, bonding materials 319
Moisture requirements 118
Mold hardness 123
Steel molding, scabbing 235
Temperature effect, pH 84
Temperature variations 175
Molding
Chills, ductile castings 259
Complex alloys 103, 106
Dry 37
Grain distribution influence 188
Green 15
Green, molding, marine 575
Heat flow 170
Oil bonded 513
pH 87
Properties under heating 402
Steel, scabbing 235
Veining, effect 324
Scabbing
Steel molding sands 235
Seal
Against blow-by 471
Self-curing
Oil binders, European 469
Sessile drops
Iron-carbon
-oxygen 215
-sulfur 215
-sulfur-cerium 215
Shell
Cupola, water-cooled 545
Molding 15
Shrinkage
Die tests 534
Ductile iron
Sponge 387
Total 388
Silicon
-Aluminum-magnesium, nitrogen and degassing effect.....424
As an inoculant 345
Content 5
Nodular iron, influence 51
Relation to graphitization 138
Sintering
Fractional factorial designs in 352
Skull-melting
Furnace, titanium 501, 502
Sleeves,
Refractory, fiber glas 484
Slip lines
Cupro-aluminum 47
Twinned crystals 47
Solidification
Feed metal transport during 394
Generalized studies 222
Metals, vibration influence 578
Time, for complete 174
Sonic
Testing 184
Specifications
Brick, carbon refractories 544
Gray iron 1
Malleable iron 7
Statistics
Applications of 155
Design and analysis 201
Optimum processing 438
Quality control 179

Status
Technology, titanium 499
Steel
Constructural, carbon and manganese effect 419
Hydrogen, affects 365
Manganese, austenitic
Casting cleaning 38
Chemical control 38
Determination 39
Heat treatment 37
Ladles and pouring 37
Melting methods 36
Metallography 39
Molds and cores 37
Physical testing 39
Transport, feed, during solidification 394
Strength
Charpy impact 76, 140
Compressive
Elasticity, sand 403
vs. mold hardness 514
Green and mold hardness.....123, 124
High; aluminum rigging design 550
Hot, sand under heating 403
Impact, tin in gray iron 595
Tensile
Aluminum 142
Bonded refractory oxides 302, 303
Titanium-aluminum-iron 376
Titanium-iron 375
Stresses
Effect, tin in gray iron 595, 596
Influence, sand to bonding materials 319
Relation to microhardness 41
Sand under heating 595, 596
Surface
Conditions
Contamination, titanium 500, 506
Effect, malleable iron 459
Tension
Effects, additions 212
Mechanism of increase 213

T

Tap
Hole, cupola 546
Tearing, hot
Correlation of heat with 406, 408
Magnesium alloys 100
Mechanical effects 247
Metallurgical effects 247
Techniques
Statistics, processing 438
Technology
Status, titanium 499
Temperature
Austenitic, effect 454
Drop in ladles 276
Effect on sand pH 84
Pouring, titanium 504
Room and high, properties, sand ...129
Stack adjustment 229
Variations in sand 175
vs. pH 85
Tempering
Ductile iron 78, 79, 80, 81
Effect on nodular iron 53
Effect on sand and castings 379
Fractures, nodular iron 54
Malleable iron 455
Tensile strength
Aluminum 142
Grade B steel 422
Phenol-formaldehyde
Bonded oxides 302, 303
Properties
Aluminum alloy.....286, 287, 288
Alloy 428
Titanium
-aluminum-iron 376
-iron 375
Tension
Mechanism of increase 213
Surface 212
Ternary alloys
Sand mold 103, 104
Testing
Hot tearing
Contraction, restrained 250
Contraction, unrestrained 250
Strength 250
Physical
Bleeding, pour-out, sand 175
Manganese steel 39
New foundry methods 181
Thermal
Properties, sand mold 172
Quantities 174
Tin
And cadmium in aluminum-copper alloys 282
-Bronzes, impact energy 465
Effect, commercial iron 595
Effect, nodular iron 596
In gray iron 590
Titanium
Ductile, graphite mold 517
Mechanical properties
-aluminum-iron 374
-iron 374
Oxidation of 138
Technology status 499
Transcrystalline fissures
Phosphor brass 44
Transport
Feed metal, solidification 394
Tuyeres
Cupola 13, 545

U

Ultrasonic
Echo inspection 186

V

Vacuum
Degassing effect, alloy 424
Die Casting 494
Variables
Effect on bronze 245
Processing effect, iron 450
Veining
Tendencies, studies 323
Vibration
Influence, solidifying metals 578

W

Wear
Characteristics, epoxy pattern materials 556
Well-zone
Lining, cupola 544
White and chilled
Gray iron 4